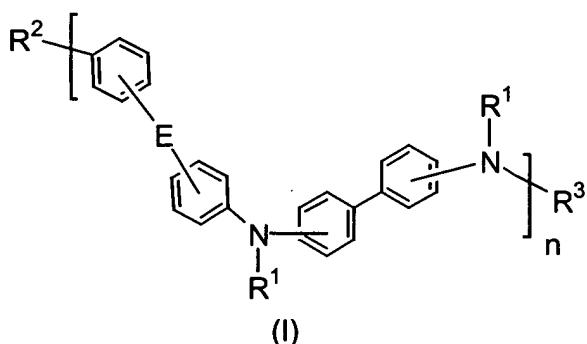


CLAIMS

What is claimed is:

1. A compound having the formula:

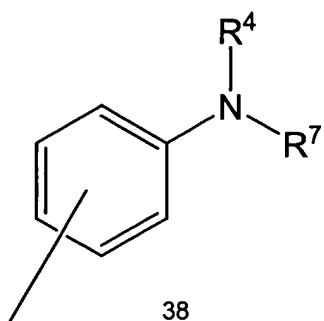
5



wherein

10        n is an integer of at least 1 and R<sup>1</sup> is selected from aryl, heteroaryl, fluoroaryl substituted with 1 or more fluorine atoms, fluoroheteroaryl substituted with 1 or more fluorine atoms, and a crosslinkable group attached to aryl, heteroaryl, fluoroaryl, or fluoroheteroaryl substituted with 1 or more fluorine atoms; R<sup>3</sup> is selected from H and R<sup>1</sup>; R<sup>2</sup> is selected  
 15        from H, aryl, alkyl, fluoroalkyl, Cl, Br, I, heteroaryl, fluoroaryl substituted with 1 or more fluorine atoms, fluoroheteroaryl substituted with 1 or more fluorine atoms; a crosslinkable group attached to aryl, heteroaryl, fluoroaryl substituted with 1 or more fluorine atoms or fluoroheteroaryl substituted with 1 or more fluorine atoms, a crosslinkable group, and an  
 20        arylamino group of formula (II),

(II)



wherein R<sup>4</sup> is selected from aryl, H, R<sup>1</sup>, alkyl, and fluoroalkyl; R<sup>7</sup> is  
5 selected from aryl, heteroaryl, fluoroaryl substituted with 1 or more fluorine atoms, fluoroheteroaryl substituted with 1 or more fluorine atoms, and a crosslinkable group attached to aryl, heteroaryl, fluoroaryl substituted with 1 or more fluorine atoms or fluoroheteroaryl substituted with 1 or more fluorine atoms;

10 E is selected from O, S, (SiR<sup>5</sup>R<sup>6</sup>)<sub>m</sub> wherein m is an integer of 1 to 20, (CR<sup>5</sup>R<sup>6</sup>)<sub>m</sub> wherein m is an integer of 1 to 20, and combinations thereof, wherein R<sup>5</sup> and R<sup>6</sup> are each independently selected from H, F, alkyl, aryl, alkoxy, aryloxy, fluoroalkyl, fluoroaryl, fluoroalkoxy, fluoroaryloxy, a crosslinkable group, and a crosslinkable group attached to alkyl, aryl,  
15 alkoxy, aryloxy, fluoroalkyl, fouoroaryl, fluoroalkoxy, or fluoroaryloxy, and wherein when E is (CR<sup>5</sup>R<sup>6</sup>)<sub>m</sub>, and n is greater than 1 and m is 1, at least one of R<sup>5</sup> and R<sup>6</sup> is not hydrogen or a hydrocarbon.

20 2. The compound of claim 1, wherein at least one aromatic ring in the compound of formula (I) has one or more substituents independently selected from H, F, alkyl, aryl, alkoxy, aryloxy, fluoroalkyl, fluoroaryl, fluoroalkoxy, fluoroaryloxy, and crosslinkable groups.

25 3. The compound of claim 1, wherein R<sup>5</sup> and R<sup>6</sup>, when taken together, form a non-aromatic ring.

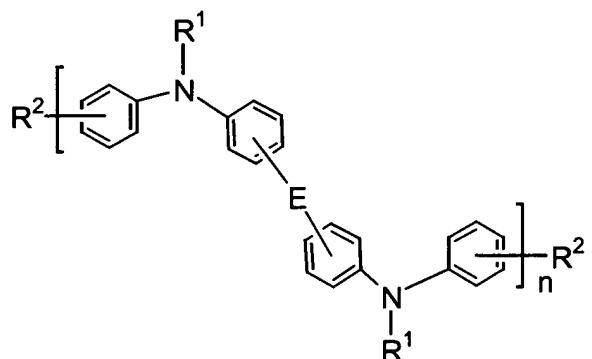
30 4. The compound of claim 1, wherein two or more substituents on two neighboring aromatic rings in the compound of formula (I) together form an aromatic or non-aromatic ring.

35 5. The compound of claim 1, wherein adjacent substituents on a single ring are linked to form a fused aromatic or non-aromatic ring.

6. The compound of claim 1, wherein  $R^1$  is selected from phenyl, 1-naphthyl, and 2-naphthyl, cinnamate and chalcone groups.

5 7. The compound of claim 1, wherein  $n = 1$ ,  $R^2$  is H, and  $R^3$  is selected from phenyl, 1-naphthyl, 2-naphthyl and styryl.

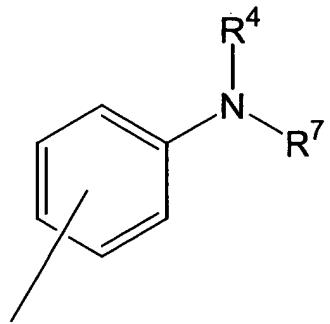
8. A compound of formula



10 (III)

wherein

n is an integer of at least 1, R<sup>1</sup> is selected from aryl, heteroaryl, fluoroaryl, and fluoroheteroaryl substituted with 1 or more fluorine atoms, and a crosslinkable group attached to aryl, heteroaryl, fluoroaryl, and fluoroheteroaryl substituted with 1 or more fluorine atoms, R<sup>2</sup> is selected from H, aryl, alkyl, fluoroalkyl, Cl, Br, I, heteroaryl, fluoroaryl substituted with 1 or more fluorine atoms, fluoroheteroaryl substituted with 1 or more fluorine atoms, a crosslinkable group attached to aryl, heteroaryl, fluoroaryl substituted with 1 or more fluorine atoms or fluoroheteroaryl substituted with 1 or more fluorine atoms, a crosslinkable group, and arylamino of formula (II)



wherein R<sup>4</sup> is selected from aryl, H, R<sup>1</sup>, alkyl, and fluoroalkyl; R<sup>7</sup> is selected from aryl, heteroaryl, fluoroaryl substituted with 1 or more fluorine atoms, fluoroheteroaryl substituted with 1 or more fluorine atoms,

5 and a crosslinkable group attached to aryl, heteroaryl, fluoroaryl, and fluoroheteroaryl substituted with 1 or more fluorine atoms;

E is selected from O, S, (SiR<sup>5</sup>R<sup>6</sup>)<sub>m</sub> wherein m is an integer of 1 to 20, (CR<sup>5</sup>R<sup>6</sup>)<sub>m</sub> wherein m is an integer of 1 to 20, and combinations thereof, wherein R<sup>5</sup> and R<sup>6</sup> are each independently selected from H, F, alkyl, aryl, alkoxy, aryloxy, fluoroalkyl, fluoroaryl, fluoroalkoxy, fluoroaryloxy, a crosslinkable group, and a crosslinkable group attached to alkyl, aryl, alkoxy, aryloxy, fluoroalkyl, fluoroaryl, fluoroalkoxy, or fluoroaryloxy, provided that when E is (CR<sup>5</sup>R<sup>6</sup>)<sub>m</sub>, and n is greater than 1 and m is 1, at least one of R<sup>5</sup> and R<sup>6</sup> is not hydrogen or a hydrocarbon.

15

9. The compound of claim 8, wherein R<sup>5</sup> and R<sup>6</sup>, when taken together, form a non-aromatic ring,

20

10. The compound of claim 8, wherein at least one aromatic ring in the compound of formula (III) has a substituent selected from H, F, alkyl, aryl, alkoxy, aryloxy, fluoroalkyl, fluoroaryl, fluoroalkoxy, fluoroaryloxy, and a crosslinkable group.

25

11. The compound of claim 8, wherein two or more substituents on two neighboring aromatic rings in the compound of formula (III) together form an aromatic or non-aromatic ring.

12. The compound of claim 8, wherein adjacent substituents on a single ring are linked to form a fused aromatic or non-aromatic ring.

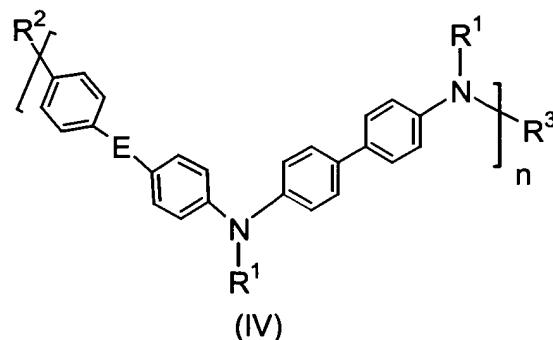
5        13. The compound of claim 8 wherein R<sup>1</sup> is selected from phenyl, 1-naphthyl, and 2-naphthyl.

10        14. The compound of claim 8, wherein n = 1, and R<sup>2</sup> is arylamino of formula (II), wherein R<sup>4</sup> is selected from aryl, H, R<sup>1</sup>, alkyl, and fluoroalkyl.

15        15. The compound of claim 8 wherein n=1, R<sup>1</sup> is selected from phenyl, 1-naphthyl or 2-naphthyl and R<sup>2</sup> is styryl or cinammate, or arylamino of formula (II), wherein R<sup>4</sup> is selected from aryl, H, styryl and cinnamate.

20        16. The compound of claim 8 wherein R<sup>1</sup> is selected from phenyl, 1-naphthyl and 2-naphthyl and R<sup>2</sup> is selected from H and aryl and E is selected from (CR<sup>5</sup>R<sup>6</sup>)m, wherein R<sup>5</sup> is selected from alkyl, aryl, and alkoxy and R<sup>6</sup> is a crosslinkable group.

25        17. A compound of formula

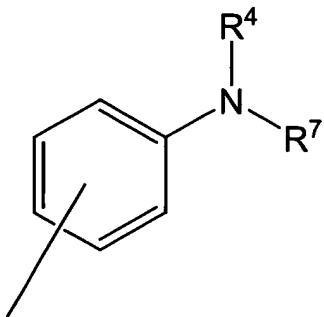


wherein:

30        R<sup>1</sup> is selected from aryl, heteroaryl, fluoroaryl, and fluoroheteroaryl substituted with 1 or more fluorine atoms, and a crosslinkable group attached to aryl, heteroaryl, fluoroaryl, and fluoroheteroaryl substituted

with 1 or more fluorine atoms; R<sup>2</sup> is selected from H, aryl, alkyl, fluoroalkyl, Cl, Br, I, heteroaryl, fluoroaryl, and fluoroheteroaryl substituted with 1 or more fluorine atoms, a crosslinkable group attached to aryl, heteroaryl, fluoroaryl substituted with 1 or more fluorine atoms, fluoroheteroaryl substituted with 1 or more fluorine atoms, a crosslinkable group, and an arylamino group of formula (II),

5      substituted with 1 or more fluorine atoms, a crosslinkable group, and an arylamino group of formula (II),



10

wherein R<sup>4</sup> is selected from aryl, H, R<sup>1</sup>, alkyl, and fluoroalkyl; R<sup>7</sup> is selected from aryl, heteroaryl, fluoroaryl substituted with 1 or more fluorine atoms, fluoroheteroaryl substituted with 1 or more fluorine atoms, and a crosslinkable group attached to aryl, heteroaryl, fluoroaryl, and fluoroheteroaryl substituted with 1 or more fluorine atoms;

15      E is selected from O, S, (SiR<sup>5</sup>R<sup>6</sup>)<sub>m</sub> wherein m is an integer of 1 to 20, (CR<sup>5</sup>R<sup>6</sup>)<sub>m</sub> wherein m is an integer of 1 to 20, and combinations thereof, wherein R<sup>5</sup> and R<sup>6</sup> are each independently selected from H, F, alkyl, aryl,

20      alkoxy, aryloxy, fluoroalkyl, fluoroaryl, fluoroalkoxy, fluoroaryloxy, a crosslinkable group, and a crosslinkable group attached to alkyl, aryl, alkoxy, aryloxy, fluoroalkyl, fluoroaryl, fluoroalkoxy, or fluoroaryloxy, provided that when E is (CR<sup>5</sup>R<sup>6</sup>)<sub>m</sub>, and n is greater than 1 and m is 1, at least one of R<sup>5</sup> and R<sup>6</sup> is not hydrogen or a hydrocarbon.

25

18.      The compound of claim 17 wherein at least one aromatic ring in the compound of formula (I) has a substituent selected from H, F, alkyl, aryl, alkoxy, aryloxy, fluoroalkyl, fluoroaryl, fluoroalkoxy, fluoroaryloxy and a crosslinkable group.

30

19. The compound of claim 17 wherein R<sup>1</sup> is selected from phenyl, 1-naphthyl, and 2-naphthyl.
- 5 20. The compound of claim 17 wherein n = 1, R<sup>2</sup> is H, and R3 is selected from phenyl, 1-naphthyl, 2-naphthyl and styryl. In some embodiments, n=1, R<sup>1</sup> is selected from phenyl, 1-naphthyl and 2-naphthyl and R<sup>2</sup> is styryl or cinammate.
- 10 21. The compound of claim 17 wherein R<sup>5</sup> and R<sup>6</sup>, taken together, form a non-aromatic ring.
22. A compound comprising a copolymers prepared by copolymerizing at least one compound of claim 1 and at least one compound of claim 8, said compound of claim 1 or claim 8 comprising at least one crosslinkable group.
- 15 23. A composition comprising a compound of claim 1.
- 20 24. A composition comprising a compound of claim 8.
- 25 25. A composition comprising a compound of claim 17.
26. An electronic device having at least one layer comprising a composition of claim 1.
- 25 27. An electronic device having at least one layer comprising a composition of claim 8.
- 30 28. An electronic device having at least one layer comprising a composition of claim 17.
29. The device of Claim 26, wherein the layer is a charge transport layer.
- 35 30. The device of claim 26, wherein the layer is a light-emitting layer.

31. The device of Claim 27, wherein the layer is a charge transport layer.

5        32. The device of claim 27, wherein the layer is a light-emitting layer.

10      33. The device of Claim 28, wherein the layer is a charge transport layer.

15      34. The device of claim 28, wherein the layer is a light-emitting layer.

20      35. The device of claim 26, wherein the device is selected from a light-emitting diode, a light-emitting diode display, a laser diode, a photodetector, photoconductive cell, photoresistor, photoswitch, phototransistor, phototube, IR-detector, photovoltaic device, solar cell, light sensor, photoconductor, electrophotographic device, transistor, or diode.

25      36. The device of claim 27, wherein the device is selected from a light-emitting diode, a light-emitting diode display, a laser diode, a photodetector, photoconductive cell, photoresistor, photoswitch, phototransistor, phototube, IR-detector, photovoltaic device, solar cell, light sensor, photoconductor, electrophotographic device, transistor, or diode.

30      37. The device of claim 28, wherein the device is selected from a light-emitting diode, a light-emitting diode display, a laser diode, a photodetector, photoconductive cell, photoresistor, photoswitch, phototransistor, phototube, IR-detector, photovoltaic device, solar cell, light sensor, photoconductor, electrophotographic device, transistor, or diode.

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